

Amendment and Response
US4825-2 (SRI-005)
U.S.S.N. 10/800,491
Page 8

REMARKS

Claims 1-24 were presented for examination. The Office Action dated October 4, 2005 rejects claims 1-24. This paper amends claims 1, 4, 6, 11-13, 15, 17, 18, 21, 23, and 24, and adds claims 25-27. The amendments are made to distinguish more clearly the invention over the cited art. Claims 1-27 are now pending in the application. Applicant submits that the newly added claims 25-27 are allowable as written.

Rejection under 35 U.S.C. § 102(b)

The Office Action rejects claims 1, 2, 4-6, 8-16, and 18-24 under 35 U.S.C. § 102(b) as being anticipated by Garner (U.S. Patent No. 4,453,163). Applicant respectfully traverses the rejection because Garner does not disclose or suggest every element and limitation of the Applicant's invention as now claimed in independent claims 1, 15, 21, and 23 or as originally claimed in unamended independent claim 19.

As now set forth in representative independent claim 1, the Applicant's invention features a heads-up display system for an aircraft having a rotating propeller assembly with a propeller blade within view of at least one occupant of the aircraft. The heads-up display system has a plurality of light-emitting elements disposed on a side of the propeller blade substantially facing at least one occupant of the aircraft, and a graphics generator controlling illumination of one or more of the light-emitting elements on the side of the propeller blade in accordance with the rotation of the propeller assembly. This graphics generator is disposed in the rotating propeller assembly.

Garner discloses a heads-up display for use on a propeller driven aircraft, with lamps embedded in the rear surface of the propeller. The lamps

Amendment and Response
US4825-2 (SRI-005)
U.S.S.N. 10/800,491
Page 9

are lit at appropriate times during each revolution of the propeller to cause flight data in graphic form to appear to the pilot.

Unlike the Applicant's invention, however, the graphics generator in Garner's heads-up display is not disposed in the rotating propeller assembly, as now set forth in the Applicant's claimed invention. Rather, the location of Garner's graphics generator is at the stationary aircraft frame (see FIG. 1). For instance, in FIG. 1, Garner's lamp drivers are connected to the lamps through slip rings (col. 2, lines 24-25). Slip rings are well-known electromechanical devices that allow the transmission of power and electrical signals from a stationary structure to a rotating structure. The location of the lamp drivers is therefore on the stationary structure (i.e., not on the rotating structure). Because Garner's graphics generator (including the character generator) supplies signals to the lamp drivers (13) to control the illumination of the lamps, and such signals do not traverse the slip rings (see FIG. 1), the location of Garner's graphics generator is necessarily on the stationary structure of the aircraft.

By locating the graphics generator in the rotating propeller assembly, the Applicant's invention avoids certain disadvantages associated with using a slip ring to transmit signals to light the lamps. If the displayed graphical image is to have sufficient resolution, a large number of lamps will be needed on each propeller blade. Garner's heads-up display will need a correspondingly large number of slip ring channels to handle the data needed to light these lamps. The use of multiple propeller blades further multiplies this number of needed slip ring channels. Moreover, slip rings can be susceptible to electrical noise from contamination of the contacting surfaces. The need to have a large number of slip ring channels simply increases the opportunity for such electrical noise to interfere with the ability to generate a stable image on the

Amendment and Response
US4825-2 (SRI-005)
U.S.S.N. 10/800.491
Page 10

propeller. Garner does not teach or suggest the solution provided by the Applicant's invention that avoids these limitations, namely, having the graphics generator in the rotating propeller assembly, as now set forth in the Applicant's claimed invention. Therefore, the Applicant respectfully submits that Garner does not show, teach, or suggest every element and limitation of the Applicant's invention, as now set forth in independent claim 1, and therefore the rejection is overcome.

Amended independent claims 15, 21, and 23 recite claim language similar to that of independent claim 1, and are therefore patentable over Garner for at least those reasons presented in connection with claim 1. With respect to independent claim 19, the Applicant's invention features a spinner having a graphics generator in communication with the plurality of light-emitting elements to control illumination of one or more of the light-emitting elements in accordance with a rotation of the propeller. Like the propeller assembly of claim 1, the spinner rotates during the aircraft's operation. Accordingly, the Applicant's graphics generator is disposed in the rotating section of the aircraft (namely, the spinner). Thus, the Applicant submits that independent claim 19 is patentable as originally written for at least those reasons presented above in connection with claim 1.

With respect to claims 2, 4-6, 8-14, 16, 18-20, 22, and 24, each of these claims depends directly or indirectly from a patentable independent claim, incorporates all of its respective limitations, and, therefore, is patentably distinguishable over Garner for at least this reason. Moreover, each dependent claim recites at least one additional limitation, which, in combination with the elements and limitations of its independent claim, further distinguishes that dependent claim from the Garner. As representative examples, Garner's does not disclose or suggest a displayed image that *conforms* to a superimposed

Amendment and Response
US4825-2 (SRI-005)
U.S.S.N. 10/800,491
Page 11

object in the background (claim 2) or the use of a *wireless* channel for transferring signals between a processor – in a *non-rotating* airframe – and the graphics generator in the *rotating* propeller assembly (claim 4).

Moreover, Garner does not disclose or suggest an electrical power source for supplying power to the graphics generator that *is disposed in the rotating propeller assembly* (claim 18). Having the electrical power source in the rotating propeller assembly with the graphics generator provides another advantage of the Applicant's invention over Garner's heads-up display system. Not only does the Applicant's location of the electrical power source avoid needing to pass electrical power from the airframe to the rotating propeller assembly (across a slip ring), but also it enables the electrical components responsible for generating the graphical image to become part of a self-contained unit that is integrated in the rotating propeller assembly. This simplifies the role the airframe in the heads-up display system to collecting information from instruments and transmitting commands to this self-contained unit in the rotating propeller assembly. Therefore, the Applicant respectfully submits that the rejection against these claims is also overcome.

Rejection under 35 U.S.C. § 103(a)

The Office Action rejects claims 3, 7, and 17 under 35 U.S.C. § 103(a) as being unpatentable over Garner. Each of these claims depends directly or indirectly from a patentable independent claim and incorporates all of its respective limitations, and, therefore, is patentably distinguishable over the cited references for at least this reason. Moreover, each dependent claim recites at least one additional limitation, which, in combination with the elements and limitations of its independent claim, further distinguishes that dependent claim from the Garner. For instance, Garner does not disclose or suggest a narrow beam that is not visible to everyone in the aircraft (claim 3) or

Amendment and Response
US4825-2 (SRI-005)
U.S.S.N. 10/800,491
Page 12

the use of a wireless channel for transferring signals between an airframe processor and the graphics generator in the propeller assembly (claims 7 and 17). Therefore, the Applicant respectfully submits that the rejection against these claims is also overcome

CONCLUSION

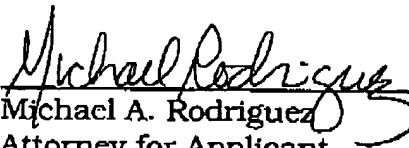
In view of the amendments and arguments made herein, Applicant submit that the application is in condition for allowance and requests early favorable action by the Examiner.

If the Examiner believes that a telephone conversation with the Applicant's representative would expedite allowance of this application, the Examiner is cordially invited to call the undersigned at (508) 303-0932.

Respectfully submitted,

Date: 3/2/06
Reg. No. 41,274

Tel. No.: (508) 303-0932
Fax No.: (508) 303-0005


Michael A. Rodriguez
Attorney for Applicant
Guerin & Rodriguez, LLP
5 Mount Royal Avenue
Marlborough, MA 01752